

Original distribution of *Trichosurus vulpecula* (Marsupialia: Phalangeridae) in Western Australia, with particular reference to occurrence outside the southwest

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Trichosurus vulpecula, ‘common brushtail possum’, is currently considered to have never occurred in ~20% of Western Australia. This paper reports the results of a survey of historical sources, showing that the species was widely known to Aborigines and was once more broadly distributed, and may have occurred across almost all of Western Australia in 1829, the year of first settlement by Europeans. A remarkable contraction in geographical range commenced *ca* 1880, caused by an epizootic, and continued from *ca* 1920–1960 as a result of depredation by foxes (*Vulpes vulpes*). Some 220 Aboriginal names from outside the southwest were discovered. These are tabulated, and most can be reduced to seven regional names. Several or all of these names appear suitable for adoption into regional use in Western Australia. The current vernacular name is now inaccurate (the species is no longer common anywhere in Western Australia and is not closely related to the Virginia opossum, *Didelphys virginiana*, which belongs to a different family of marsupials), and should be replaced by one or more Aboriginal names.

KEYWORDS: Aboriginal names, biogeography, brushtail possum, ecological history, mammal, regional extinction, *Trichosurus vulpecula*

INTRODUCTION

Trichosurus vulpecula, known as the ‘common brushtail possum’ (Kerle & How 2008), until recent times occurred across Australia but was apparently absent from parts of Western Australia (Figure 1) and South Australia due to extinction both before and after European settlement. This species was once the fourth most widely distributed native mammal species in Australia (as well as Western Australia) after the short-beaked echidna *Tachyglossus aculeatus*, Gould’s wattled bat *Chalinolobus gouldii*, and lesser long-eared bat *Nyctophilus geoffroyi* (Burbidge *et al.* 2008; Van Dyck & Strahan 2008).

T. vulpecula has become extinct since European settlement over much of inland Australia (Kerle & How 2008). However, intriguingly, there are two large areas in Western Australia where there are no records of occurrence, and three other areas where the species is known only from subfossil or cave deposits (Figure 1) (Kerle & How 2008). Nonetheless, perusal since 1999 of Western Australia colonial, state and other newspapers, exploration diaries, and other early records has revealed that *T. vulpecula* was more widely distributed than indicated on the maps published by How & Kerle (1995) and Kerle & How (2008).

This paper documents the occurrence of *T. vulpecula* in Western Australia, based on all available records. Reasons for its decline since the European settlement of Western Australia are discussed.

METHODS

Distribution records were obtained from seven kinds of sources.

1. Specimens held in the collection of the Western Australian Museum (Kitchener & Vicker 1981)

2. Scientific reviews and reports by Collett (1897), Helms (1897), Thomas (1904), Dahl (1927), Lundelius (1963), Youngson *et al.* (1981), How (1983), Kerle (1983, 2001), McKenzie & Youngson (1983), Baynes (1987, 1990), Boscacci *et al.* (1987), Burbidge *et al.* (1988), How *et al.* (1988), Kerle *et al.* (1992), Baynes & Jones (1993), Jones (2004), Start *et al.* (2007) and Abbott (2008).

3. Journals and documents written by explorers and others, namely Exploration Diaries (1827–1871), Grey (1841), Eyre (1845), Austin 1854, (see Abbott 2009a), Lefroy (1863), Clarkson (1864), Hunt (1864), Martin (1864), Forrest (1875), Gregory & Gregory (1884), Lindsay (1893), Carnegie (1898), R T Maurice (Murray 1904), Giles (1889), Hill 1899–1900 (see Abbott 2009b), Davidson (1905), Gribble (1905), F Wittenoom (Lefroy 2003), F Hann (Donaldson & Elliot 1998), Russel (1899), F M House (Brockman 1902), Basedow (1904) and Easton (1922).

4. Records published in newspapers: *Perth Gazette*, *Inquirer* [Perth], *The West Australian*, *The Australasian* [Melbourne], *The Western Mail* [Perth], *Kalgoorlie Miner* and *The Geraldton Guardian*.

5. Aboriginal knowledge, particularly their names for the species, recorded by Curr (1886), Helms (1896), Yabaroo (1899), Bates (nd), Mathews (1910), Brown (1913), Mjöberg (1915), Alexander (1920), Ngabidj & Shaw (1981), Burbidge *et al.* (1988), and Abbott (2001). Nearly 130 Aboriginal language groups (‘tribes’) originally occurred in Western Australia (Tindale 1974).

6. Archival documents (1912–13) from the Colonial Secretary’s Department (1913) held by the State Records Office of Western Australia. In 1909 the Western Australia Government declared the first ever closed

season to protect *T. vulpecula* from hunting (Abbott 2008). The 1912-13 reports from police districts were intended to provide the necessary information as to whether populations had recovered sufficiently to allow the closed season to be repealed.

7. Recollections by oldtimers (Richards & Short 1996, Abbott 2008).

RESULTS

All of the localized records found of *T. vulpecula* are mapped in Figure 2. These show that *T. vulpecula* was once widely distributed in Western Australia. However, most of the records provide little more information than the geographical location. Those that present additional information are detailed in Table 1. Several of the records from the interior of Western Australia allude to the rarity of *T. vulpecula* before exotic predators, particularly *Vulpes vulpes* (fox), colonised. More than 220 names used by Aboriginal people in Western Australia for *T. vulpecula* were located during my review of documents (Table 2).

Comparison of Figures 1 and 2 indicates that *T. vulpecula* was more widely distributed in Western Australia than previously thought. The extent of the area in which the species is not known to occur has been reduced considerably, raising the possibility that at least some of the blank areas in Figure 2 may represent under sampling rather than true absence.

DISCUSSION

Original geographical range

T. vulpecula is unknown as subfossil in the region adjoining Shark Bay (Baynes 1990). Furthermore, no Aboriginal term for this species has been recorded by Austin (1992a-f) for the Yinggarda (Shark Bay, Gascoyne River north to Wooramel River, and inland to Red Hill and Gascoyne Junction), Warriyangga (upper Gascoyne River), Thargari (Lyons River), Thalanyji (Ashburton River), and Jiwari (upper Lyons River) people. Apart from an Aboriginal name recorded for the Watchandie

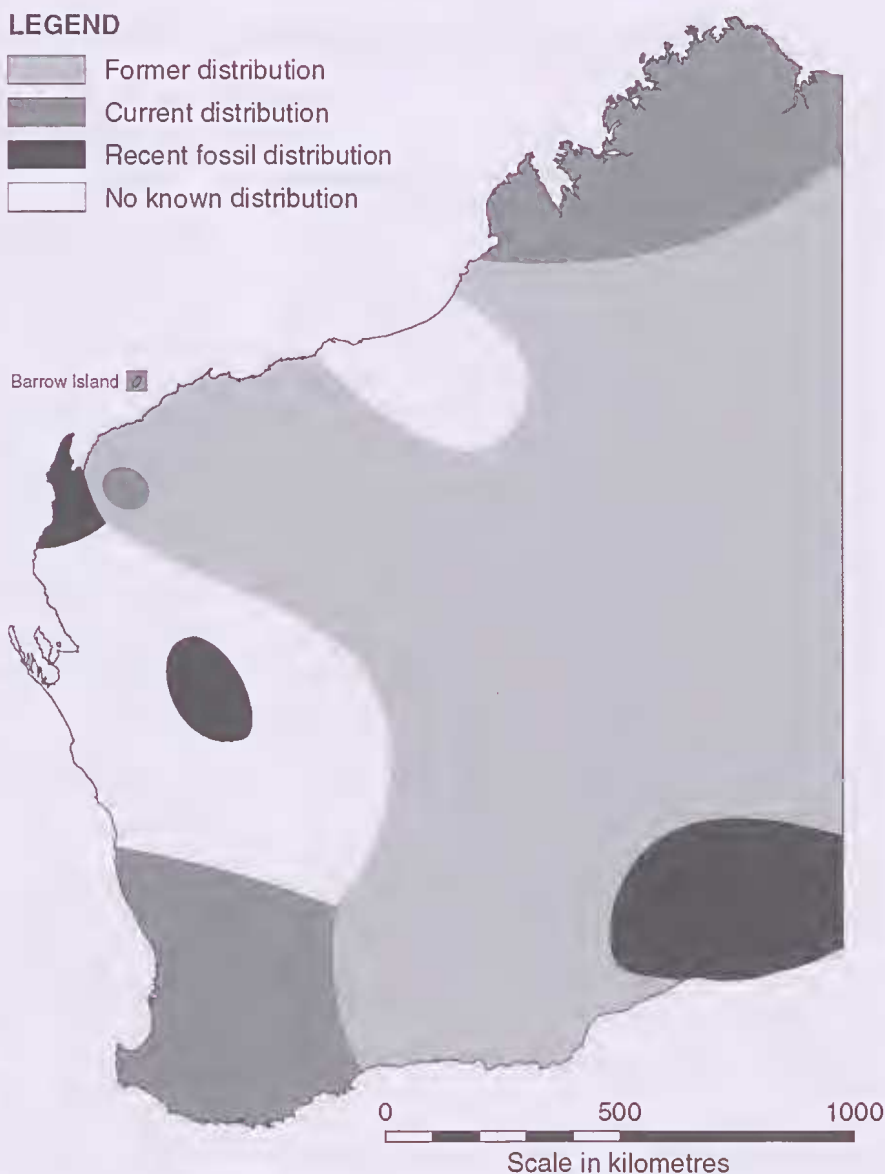


Figure 1. Current understanding of the past, recent and present distribution of *Trichosurus vulpecula* in Western Australia (after Kerle & How 2008).

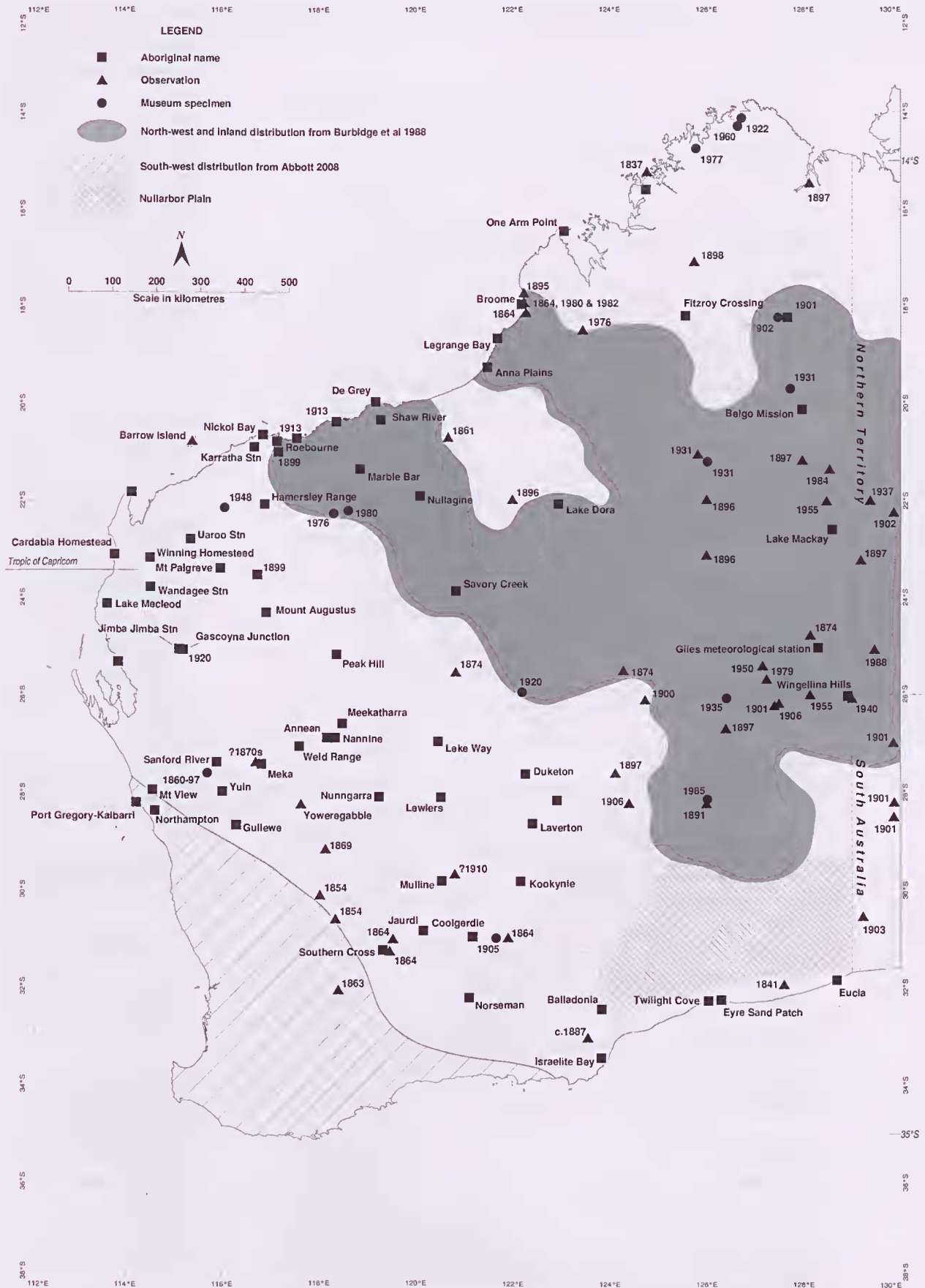


Figure 2. Localised records of the occurrence of *Trichosurus vulpecula*, in Western Australia, based on Aboriginal names for the species, observations and museum specimens.

Table 1 Historical records of occurrence of *Trichosurus vulpecula* in Western Australia that provide additional information about abundance, ecology, or Aboriginal usage*.

Year	Record	Reference
1837	Opossum remains found around campfires and many hollow trees with signs of having been smoked by Aborigines to capture possums, Kimberley	Grey 1841 vol. 1: 240–241
1841	Opossums 'abound', Eucla-Eyre district	Eyre 1845 vol. 1: 351
1845	Dexterity of an Aboriginal capturing a possum in an inaccessible tree, Murray River	<i>Inquirer</i> 15.1.1845: 2
1854	Great quantity of opossum fur at Aboriginal campsite, near Fraser Rocks	Austin 1855 (Abbott 2009a: 160)
1861	Aboriginal headdress made of grass and possum fur, Oakover River	Gregory 1862: 408
1864	Opossums being eaten by Aborigines, near Mt Monger	Hunt 1864: 62
1864	Opossum skins noted, and twine made of opossum hair, Roebuck Bay	<i>Perth Gazette</i> 5.8.1864: 3–4
1882	Aborigines 'live wretchedly, there being very little game up here. Even the opossum is scarcely ever found' [A Crawford, Moorarrarie station, Murchison region]	<i>The Australasian</i> 28.1.1882: 570–1
ca 1886–1887	'[The Aborigines'] condition has been aggravated during the last five or six years by a vast array of domestic cats, which has spread everywhere. Opossum, tammur, kangaroo rats, wallaby, murnine, rock wallaby, bandicoots, pigeon, mallee hen, squeakers, and many other birds and animals [mammals] which formerly formed the chief food of the natives, are almost, if not quite, annihilated.' [Balbinya, c. 70 km SW of Balladonia]	J P Brooks in <i>The West Australian</i> 4.7.1892: 3
ca 1874–1890	'O'possums were not plentiful'	Lefroy 2003: 38
1891	Aborigines cooking opossum	Lindsay 1893: 23
1894	A 'full-sized opossum' found in the stomach of a carpet snake c. 6'6" in length, Canning River	<i>The Inquirer & Commercial News</i> 5.1.1894: 3
1894	A 'full grown opossum' disgorged by a captured carpet snake c. 8' in length, Mt Bakewell	<i>The Inquirer & Commercial News</i> 7.12.1894: 22
1895–1896	Common at Roebuck Bay, but 'nowhere numerous'; 'much in request by the natives for food'.	Collett 1897: 329
1896	Tassels hung on string of opossum and human hair	Carnegie 1898: 244
1896	Aboriginal party preparing their evening meal, which included opossums. Afterwards saw their tracks on a large eucalypt nearby. [27.9.96]	Carnegie 1898: 258
1897	Aboriginal neckband of opossum wool	Carnegie 1898: 391
1897	Aboriginal woman hunting; her catch included 'several 'possums'	Carnegie diary 15.5.97
1897	Aborigines had just eaten an opossum	Russel 1899: 66
1901	Opossums 'somewhat rare in this country'	Murray 1904: 14
1901	'not numerous apparently. I saw only one, which I found curled up in a "chatterer's" nest'	F M House in Brockman 1902: 51
1901–1902	Possum fur used by Aborigines as string during initiation ceremonies	D Bates in White 1985: 166, 168
1905	'a full-grown silver-grey opossum' trapped: The first of its kind I have known to be seen or caught in these parts. Others were incredulous until they had seen it. The natives were greatly interested, and did not know what it was at first. Afterwards one of them had an excited 'wongi' with his dusky brethren. On being appealed to he said 'That one gammo,' but vouchsafed no other information. [Feysville]	<i>Kalgoorlie Miner</i> 4.7.1905: 4
-	'The only opossum I knew having been found on the Eastern Goldfields was got by Mr. Wm. Connaughton just near the Cheapside Gold Mine, and was a white one with pink eyes.'	<i>The West Australian</i> 24.12.1927: 5
ca 1910?	'a coal black male...The Italian charcoal burners got him in the bush at Kensington, I think it was...brought him in to...Yundagi [Youndaga], four miles from Menzies, and he was on view for some time'	<i>The West Australian</i> 24.11.1928: 5
ca 1910?	Young Gascoyne Aboriginal girls occasionally wore a band of possum fur around their heads	D Bates in White 1985: 127
1921	'Several opossums were observed, and judging by the markings on some of the trees, are very numerous in certain localities' (north Kimberley region)	Easton 1922: 45
-	When a boy, used to get possums out of burrows in the ground, using a dog to locate tenanted ones, ?Katanning	<i>The West Australian</i> 26.9.1925: 11
-	Trapped possums at a rabbit warren, ?Narrogin	<i>The West Australian</i> 3.10.1925: 15
-	Ground possums, no locality	<i>The West Australian</i> 10.10.1925: 15
-	Possums in rabbit burrows, Narrogin	<i>The West Australian</i> 22.5.1926: 9
1937	Two 'mangrove opossums' from Yarraloola [Robe River] loaded on a ship at Onslow for transport to Perth Zoo	<i>The Northern Times</i> 17.11.1937: 2
1948	While woodcutting near Ivanhoe station [Kimberley region], Aborigines found a possum in a hollow log. 'O'possums have rarely, if ever, been seen in the Kimberleys. Even the natives admitted that it was a stranger to them'	<i>The Northern Times</i> 25.11.1948: 5

* See also Abbott (2008 pp. 72–84) for further information relating to this species in southwest Western Australia.

Table 2 Names used by Aboriginal people in Western Australia for *Trichosurus vulpecula**.

Language group/ Geographical location	Name(s)	Reference
Ord River	guman	Ngabidj & Shaw 1981: 129
Worora (opposite Augustus Island)	bul'kumba	Love nd
Derby	Nan goo in, Kanderai	Bates nd 52/132
Sunday Island [?Derby]	Lang'orr	Bates nd 53/40
Lower Fitzroy River	langura	Bates nd 51/30
Fitzroy River telegraph station	Long o	Bates nd 53/1
Fitzroy	Chambindie	Bates nd 53/92
Halls Creek	Nan'goo'in, tchamin'dee, kanderai, nungwin	Bates nd 52/132
Halls Creek	nunguin	Bates nd 53/87
Halls Creek	nunguin	Mathews 1910: 221
Turkey Creek	Nan'gooin	Bates nd 53/13
Jaru (Broome)	jang	Anon. 1992
Between Broome & Willie Creek	Langoor	Bates nd 52/1
Broome	Lang'er, lang'ur	Bates nd 52/61
Noonkanbah; St George Range	gundaman; chambigin	Mjöberg 1915
Bardi (N Dampierland peninsula)	langgoor, langgooroo	Aklif 1999
Yulparija (Bidyadanga)	wartawirrkarl, winkuma	Anon. 2006
Northern Nyangumarta (Anna Plains)	langkurr, winkuma	McKelson 1989
Nganumarta (Anna Plains to Warragine & Bidyadanga)	langkurr	Hanson 2007 (McKelson & Dodd 2007)
Port Hedland	Wall-um-burry	Bates nd 50/106
Ngurla (mouth of De Grey River)	wallambine	Curr 1886 vol. 1: 292
Banaka-Palyeri (Turner River, Sherlock River, Chanjara clan)	Walambari	Brown 1913: 163, 165, 189
De Grey River mouth	Wallambine	Bates nd 50/119
Weedookarry (Shaw River)	koobalyie	Curr 1886 vol. 1: 294
Shaw River	Koobalyie	Bates nd 50/123
Pilbara (Koongan)	Kooberdee	Bates 48/24
Pilbara (Warran/Wandarree)	Nyardee, walarra	Bates 48/38
Pilbara (Nullagine)	wal'lamberree	Bates nd 49/45
Nickol Bay	wolumberree	Curr 1886 vol. 1: 300
Ngalooma (Roebourne)	walambarri	Hall 1971
Roebourne	Wallumberree	Bates nd 48/1
Roebourne	Kulbin	Bates nd 49/142
Roebourne district (Karralla station)	Wallamberre	Bates nd 49/1
Roebourne district (Tambrey station)	Warr-kie	Bates nd 50/47
Roebourne	Wallumberrie	Bates nd 50/101
Roebourne district	Walumberri	Yabaroo 1899
Roebuck Bay (interior)	Parrudine	Perth Gazette 5.8.1864: 3–4; Martin 1864: 88
Fortescue	Wallabung	Bates nd 50/117
Nyamal (E of Marble Bar)	marlarlparra	Anon. 2007
Watjarri (lower Murchison River & Sanford River)	wayurta	Douglas 1981
Sanford River (Murchison)	Wai'oor'da	Bates nd 54/52
Payungu (Minilya & Lyndon Rivers)	wayurd	Austin 1992e
Kakarakala (North West Cape-30 miles S of Gascoyne River)	marajaak	Curr 1886 vol. 1: 304
Inland Ashburton & upper Hamersley Range, Pilbara	walyi	Anon. 2008
Jiwarli (between Ashburton River & source of Lyndon River)	wayurta	Burgman 2006a
Ashburton district (Naroo station)	Kailburn	Bates nd 48/96
Ashburton district	Kulyiban	Yabaroo 1899
Kurrama (Hamersley Range)	kupiti	Burgman 2006b
Lyons River	Wyulda	Alexander 1920
Lyons River	Gunamoongoo	Bates 48/135
Wandajee, Gascoyne & Minilya	marra jugga, waioorda	Bates nd 48/149
Gascoyne	Wyardiar	Bates nd 50/1
Carnarvon	Wai-oorda	Bates nd 48/48
Weld Range (Cue)	Wai'oorda	Bates nd 54/74
Nyangara (Sandstone)	Dharlda	Bates nd 54/105
Yooldhura (Morarie & NW of Nannine)	Wai'oorda	Bates nd 54/117
SW of Peak Hill (Meekatharra)	Wai'oorda	Bates nd 54/140

Table 2 (cont.)

Language group/ Geographical location	Name(s)	Reference
NW of Peak Hill (Warngun & Yalladnoolgu)	Jangala	Bates nd 54/167
Peak Hill (Murchison district)	Jang'ala	Bates 54/200
Yuin (Murchison district)	wiurda	Bates nd 57/99
Yooiin	waioorda	Bates nd 58/86
Yuin-Murgoo district	Wyurda	F Wittenoom in Lefroy 2003: 39
Annean station (Murchison district)	Wy-a-da	Bates nd 57/101
Yuin Creek via Annean	Gnu-err, y-ar-do	Bates nd 57/102
Mt View (Murchison district)	Wi-yau-dar	Bates nd 57/105
Duketon (Mt Magnet district)	Wy-a-doo, Gin-yi-ga	Bates nd 58/73
Yoweragabbie (Mt Magnet district)	waiádu	L A Wells in Lindsay 1893: 78
Watchandie [?Wooramel River, Shark Bay]	We-urda, We-zue-da	Oldfield 1865
Cheangwa (Murchison district)	wioora	Bates nd 58/86
Gullewa (Murchison district)	waioorda	Bates nd 58/86
Shark Bay	yoorda	Curr 1886 vol. 1: 308
Mouth of Murchison River	weurda	Curr 1886 vol. 1: 312
Nhanda (Kalbarri – Port Gregory)	wiyarda	Blevins 2001
Northampton	Wai'oor'da	Bates nd 54/24
Oakabella	waioora	Bates nd 58/86
Champion Bay [Geraldton]	Wy-a-der	Bates nd 58/86
Victoria Plains (Dongara)	Wai'oor'da	Bates nd 54/1
Pinjarrah (EAA Fawcett)	Coumal	Bates nd 43/97
Pinjarrah (W Hymus)	Koom-marl	Bates nd 43/98
Karatjari	langkurr, winkuma	Burbidge <i>et al.</i> 1988
Kartutjarra	nyalumpara, nyuwilpa, wayurta, winkuma	Burbidge <i>et al.</i> 1988
Kartujarra (W of Lake Disappointment)	wayurta	Anon. nd
Kukatja	kitu, kuringka, marlalparra, ngarlumpa, nuywilypa, tjampinti, tjangarpa, wartawirrka, wayurta, wina-wina	Burbidge <i>et al.</i> 1988
Kukatja (Balgo)	tjaatutu, tjapiyinti, tjawi-tjawi, kumputinti, malaparra, mulalpara, mungawayuru, pirtikarra, tatikara, tjanpiyinti, tjangarpa, wartangkawirrpa, wayurta	Valiquette 1993
Luritja	nurta, wayurta, yimurra	Burbidge <i>et al.</i> 1988
Pitjantjatjara (Kata Arla Winjelinna)	wayuta	Anon. 1987
Mangala	langkurr, tjinapapi, winkuma	Burbidge <i>et al.</i> 1988
Manytjilytjarra	marlalparra, nyalumpara, partawirrka, wayurta, winkuma	Burbidge <i>et al.</i> 1988
Ngaanyatjarra	mungawayurru, tjaparlp/tjapalpa, tjiwangu, wayurta	Burbidge <i>et al.</i> 1988
Ngaanyatjarra & Ngaatjatjarra (near Northern Territory/South Australia border)	wayurta	Glass & Hackett 2003
Ngaatjatjarra	marliyarra, mungawayurru, tjaparlp/tjapalpa, wayurta	Burbidge <i>et al.</i> 1988
Nyamal	wanitjara, wantjinara	Burbidge <i>et al.</i> 1988
Nyangamarta	marlalparra, wanitjara, wantjinara, winkuma	Burbidge <i>et al.</i> 1988
Nyiypali	kaparti, marlalparra, nyalumpara, turrumanta	Burbidge <i>et al.</i> 1988
Parti	langkarr/langkurr, walanpara? [sic]	Burbidge <i>et al.</i> 1988
Pintupi	katatjurta, marlalparra, marliyarra, mungawayurru, nyunta, parntawirrka, pirtikarra/pirtikarratja, tjangarpa, wayurta, wina-wina, yurltukarra/yurltukarratja	Burbidge <i>et al.</i> 1988
Putitjarra	Wayurta	Burbidge <i>et al.</i> 1988
Tjaru	Tjangarpa	Burbidge <i>et al.</i> 1988
Walmartjari	kitu, tatikarra, tjanpitjin, tjanpiyinti, winkuma, wayurta	Burbidge <i>et al.</i> 1988
Wangkatjungka	kitu, marlalparra, ngarlumpa, nuywilypa, tatikarra/talikarra, tjangarpa, wartawirrka, wayurta, wina-wina, winkuma	Burbidge <i>et al.</i> 1988
Warnman	marlalparra, winkuma	Burbidge <i>et al.</i> 1988
Warnman	Papumalu	Anon. 1991
Western Desert (Kalgoorlie, Ceduna SA, Wiluna, Alice Springs NT)	wayurta, tjaparlp	Douglas 1988
Lake Way	waiurda	Bates nd 58/86

Table 2 (cont.)

Language group/ Geographical location	Name(s)	Reference
Norseman, Southern Cross, E goldfields district	Wamba, womba, Jammar	Bates nd 47/10
Lawlers (East Murchison district)	waioordoo, dhoogalleeda	Bates nd 58/86
NE Laverton	waiurda	Bates nd 58/86
E of Laverton	waiurda, tugalida	Bates nd 58/86
Laverton	waioordoo	Bates nd 58/86
Kookyne (Menzies district)	kinnika, wyadoo	Bates nd 58/44
Mulline (Menzies district)	waioorda	Bates nd 58/86
Canegrass (Jaurdi)	Jammunmaaroo, Jammun	Bates nd 58/86
Coolgardie	Jamma	Bates nd 47/44
Feysville	gammo	<i>Kalgoorlie Miner</i> 4.7.1905: 4
Between Southern Cross & Mt Jackson, Burracoppin	Tchamma, jamma	Bates nd 47/68, 47/12
Israelite Bay	Janna	Bates nd 58/86
Fraser Range	Damma	Helms 1896: 322
Balladonia	jamma	Bates nd 58/86
Wonunda Meening (Eyre Sand Patch [Point Culver to 140 miles E and inland for 30–40 miles])	pilda	Curr 1886 vol. 1: 398
Eyre, Eucla	Bilda	Bates nd [?1912–14] 58/86
Twilight Cove	Bilda	Bates nd [?1912–14] 58/86
Yircla Meening (Eucla to 100 miles E, 40 miles W and N to Nullarbor Plain)	bilda	Curr 1886 vol. 1: 404
Nullarbor Plain (South Australian sector)	bilda	D M Bates in <i>The Australasian</i> 10.8.1918: 279
Karura (Eucla district)	Bilda, Jamma	Bates nd [?1912–14] 58/86

* Not included in this Table are 67 Noongar (southwest Aboriginal) names for *T. vulpecula* (Abbott 2001)

(?Wooramel River) by Oldfield (1865) and the Jiwarli (upper Lyons River) by Burgman (2006a), no post-European settlement records of this species were found around the coastline of Shark Bay.

Kerle & How (2008) showed *T. vulpecula* as present on the Nullarbor Plain as recent subfossil material, evidently based on the accounts of Lundelius (1963) and Baynes (1987). No post-European settlement records of this species were found actually in the Western Australia sector of the Nullarbor Plain, only to the north and south. However, there is a sight record from the South Australian sector of the Nullarbor Plain (Figure 2). Presumably this species on the Nullarbor Plain sheltered mainly in warrens made by the boodie, *Bettongia lesueur*.

T. vulpecula is too large an animal to have been captured by barn owls *Tyto alba*. The masked owl *T. novae-hollandiae* occurs in the northern Kimberley and lower southwest regions of Western Australia but nests in tree hollows, not caves (Johnstone & Storr 1998). *T. vulpecula* is known to have sheltered in caves and under breakaways, where these are available (Burbidge & Fuller (1979). Caution should therefore be exercised in presuming that local absence, particularly in arid regions, of subfossil material of this species necessarily indicates that possums did not occur.

T. vulpecula is unknown as subfossil on Western Australia's largest island (Dirk Hartog Island: Burbidge & George 1978). Therefore, the record of 'a small opossum' in 1822 (King 1827 p. 183) is likely to be a misidentified mammal of similar size, most probably *Bettongia lesueur*. The absence of *T. vulpecula* from all but

one Western Australia island is intriguing. Barrow Island is a large island (23 950 ha) that was never visited by Aborigines. Dirk Hartog Island is about three times larger than Barrow Island. At its southern end it is very close to the mainland, and Aborigines may have lived on and travelled to and from the island until the final connection to the mainland was breached relatively recently (~5 ka BP). Although able to swim, Aborigines apparently ceased to visit by 3.5 ka BP, as no subfossil remains of the dingo *Canis lupus dingo* have been discovered on Dirk Hartog Island (Baynes 1990). All accounts of the island between 1697 and 1858 indicate that Aborigines did not occur there (I Abbott unpubl. data). Although rafts and logs were in use by Aborigines in large rivers of the nearby Gascoyne and Murchison regions (Bowdler 1995), no rivers occur near Dirk Hartog Island, and none of the early European visitors recorded watercraft in use in Shark Bay. One of the attractions for Aborigines to visit this island may have been marine turtle breeding grounds situated at the northern end. As well as the absence of *T. vulpecula*, this island has other anomalies, particularly the absence of macropodid mammals that have persisted on the smaller but more remote Bernier and Dorre Islands (Baynes 1990). These absences may have resulted from predation by Aborigines, as hypothesised more generally for many Australian islands by Abbott (1980).

The minimum area of islands elsewhere in Australia that are known to support a natural population of *T. vulpecula* is ~600–700 ha (Abbott & Burbidge 1995). In the mesic Kimberley region of Western Australia there are many islands of this and larger area. Some of these are

Table 3 Apparent extinction of *Trichosurus vulpecula* in various localities in Western Australia, based on replies received to a circular letter from the Police Commissioner asking officers to ascertain if the closed season has had the desired result of increasing the number of possums in the various police districts (from Colonial Secretary's Department Aborigines and Fisheries file 652/108/5a/992).

Police district	Date	Comments
Broome	~5.1912	Extinct for many years
Yalgoo	3.7.1913	None in this sub-district. Old residents say that they have never seen any here
Nannine	18.6.1913	'not indigenous to this Sub-district & there is no record of them having been ever met with in the [?sub-district], not even by natives'
Sandstone	9.5.1912	None present & there never has been any
Sandstone	23.6.1913	'so far as I can learn there never has been any'
Wiluna	12.5.1912	None present
Wiluna	15.6.1913	None in this sub-district
Peak Hill	13.5.1912	Do not exist in this district & have never heard of any resident having seen any here
Meekatharra	9.5.1912	None present (interviewed station employees, prospectors, & Aborigines)
Meekatharra	30.6.1913	None present in this sub-district (Police Constable asked old prospectors and Aborigines)
Mt Magnet	7.5.1912	None exist in this sub-district
Mt Magnet	11.6.1913	Enquired of Dowden Bros (c. 40 miles E), James Bros (c. 18 miles W) & W Watson (local store owner): None seen for at least 16 years [1897] or nor have they heard of any being caught
Youanmi	8.5.1912	None ever present (old residents interviewed)
Youanmi	15.6.1913	None in district
Cue	14.6.1913	None seen in district – last seen > 9 years ago [< 1904] at McGrath's station, Kalli [NW of Cue]
Carnarvon	20.5.1912	None in any part of Gascoyne District
Carnarvon	13.5.1913	'there are no opossums in the Gascoyne District'
Bullfinch	11.6.1913	There has never been any here, so far as can be ascertained
Marvel Loch	9.6.1913	None in the sub-district
Southern Cross	9.6.1913	None in the sub-district
Menzies	4.5.1912	None in this district
Kalgoorlie	11.6.1913	None

Table 4 Other records of apparent extinction of *Trichosurus vulpecula* in Western Australia, additional to those published in Abbott (2006, 2008).

Locality	Date	Comments	Reference
East of Malara [27°35', 115°43']	Between 1860 & 1897	'In 1860 I was out the other side of Malara cutting sandalwood, and the country abounded with opossums, but now they are extinct – through the droughts, the natives say'	<i>The Western Mail</i> 24.9.1897: 47
Burracoppin	1901	'all dead' 'some virulent disease, such as has decimated opossums'	Bates nd 47/12 <i>The Inquirer & Commercial News</i> 1.2.1901: 11 Bates nd [?1912–14] 58/86
Karura (Eucla district)	<1912–1914	'none at Eucla'	
Near Coomberdale (Moora district)	1915	One found recently: 'it is stated that it is thirty years [1885] since opossums have been found so far east'	<i>The Geraldton Guardian</i> 20.2.1915: 2

composed (at least partially) of fertile volcanic soils and should support woodland with nutrient-rich foliage, a habitat characteristic known to facilitate high densities of arboreal marsupials (Braithwaite *et al.* 1983). However, all of these islands were accessible to Aborigines, so that the unexpected absence of *T. vulpecula* may have resulted from unsustainable predation over a long period of ~5 ka.

In many of the early accounts located and reviewed, *T. vulpecula* was not recorded even though this was well before the arrival of the fox in Western Australia in 1912. This is suggestive of a very low density of occurrence and sparse dispersion across the landscape in the interior of Western Australia, perhaps linked to the paucity of watercourses. It has been demonstrated for the Northern Territory and South Australia that *T. vulpecula* is (or was) most abundant in rocky ranges and outcrops and along watercourses (Kerle *et al.* 1992). Nevertheless, *T. vulpecula* can live without trees and is known to have sheltered in warrens made by *Bettongia lesueur* (Burbidge *et al.* 1988;

Abbott 2008), and in large termitaria in spinifex country (Burbidge *et al.* 1988). On Barrow Island, which lacks trees, *T. vulpecula* lives in caves, rock piles and termite mounds (Butler 1970; Morris & Burbidge 2002).

The wide distribution of *T. vulpecula* demonstrated by the historical approach of this paper aligns with the occurrence of *T. vulpecula* in all but one (Central Kimberley) of the 26 bioregions in Western Australia (Burbidge *et al.* 2008). This study also demonstrates that a distribution map based solely on museum specimens (OZCAM 2012) is misleading.

Extinction of populations

The most recent map available of the geographical distribution of *T. vulpecula* in Western Australia (Kerle & How 2008, redrawn here as Figure 1) shows that this species has become extinct since European settlement over a large portion of its Western Australia range. Most

of this area receives low annual rainfall, so that densities of *T. vulpecula* were probably very low most of the time.

In the 1880s an epizootic disease swept through the western portion of the interior (Abbott 2006) and this species, one of many, declined and in many places became locally extinct. Kerle (2004) also cited records of disease causing almost local extinction of this species in Queensland in 1881 and 1888, and also in New South Wales in 1950. Local extinction caused by 'some eruptive skin disease' in 1881–1882 of *T. vulpecula* along the Darling River, in the district between Broken Hill and Wilcannia, and in 1884–1885 along the Barwon River, New South Wales, has also been placed on record (Royal Commission 1890 pp. 41, 84, 96; *The Western Mail* 8.9.1900 p. 5).

Unlike the wheatbelt of Western Australia and similar agricultural landscapes elsewhere in Australia (Kerle 2004), habitat change (as tree removal) is obviously not a relevant factor in causing extinction of *T. vulpecula* throughout the deserts of Western Australia.

The presence of exotic predators, particularly the fox, has also greatly impacted on the distribution and abundance of *T. vulpecula* (Burrows & Christensen 2002; Orell 2004). Kerle *et al.* (1992) have proposed a conceptual model for the arid zone that links drought and fox predation together in explaining the widespread extinction of *T. vulpecula* in the arid zone of Australia. Following successful fox control via aerial deployment of poison baits, translocation of 95 animals from southwest Western Australia to Lorna Glen, a former pastoral property, has been accomplished successfully during the period 2007–2009 (Dunlop & Morris 2009; Miller *et al.* 2010). The long-term success of this translocation is yet to be determined.

Aboriginal names for *Trichosurus vulpecula* in Western Australia

It is evident from Table 2 and Abbott (2001) that there are strong regional groupings of Aboriginal names. The vernacular name used by contemporary zoologists is 'common brushtail possum' (Kerle & How 2008). This is no longer appropriate for Western Australia as the species is now nowhere common in Western Australia. Even in the more mesic southwest of Western Australia this species is clearly now much reduced in abundance compared with the numbers that were hunted or snared for their pelts in the period 1899–1910 (Abbott 2008; *The West Australian* 17.7.1925 p. 10).

The term 'possum' is also inappropriate, being derived from the North American (Algonquian) word *wapathemwa*, meaning 'white animal'. This refers to the Virginia opossum, *Didelphys virginiana*, which belongs to a different family (Didelphidae) of marsupials. An Aboriginal word would seem more preferable to a North American indigenous name. Kerle & How (2008) do not list any Aboriginal names for *T. vulpecula*.

For the above two reasons, it seems more appropriate that *T. vulpecula* be called the langkurr or nunguin in the Kimberley region, wallamberri in the Pilbara region, wayurta in desert regions, koomal in southwest Western Australia, jamma in the goldfields, and bilda along the southeast coast.

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REFERENCES

- ABBOTT I 1980. Aboriginal man as an exterminator of wallaby and kangaroo populations on islands round Australia. *Oecologia* 44, 347–354.
- ABBOTT I 2001. Aboriginal names of mammal species in south-west Western Australia. *CALMScience* 3, 433–486.
- ABBOTT I 2006. Mammalian faunal collapse in Western Australia, 1875–1925: the hypothesised role of epizootic disease and a conceptual model of its origin, introduction, transmission, and spread. *Australian Zoologist* 33, 530–561.
- ABBOTT I 2008. Historical perspectives of the ecology of some conspicuous vertebrate species in south-west Western Australia. *Conservation Science Western Australia* 6, 1–214 (Corrigendum 7, 633).
- ABBOTT I 2009a. Appendix H. Fauna. In: Bridge P J, Epton K, Hercocock M & Milentis S (eds) *The Finest Gold Fields in the World, the Austin Expedition to the Murchison in 1854*, pp. 157–166. M G Creasy & Hesperian Press, Carlisle.
- ABBOTT I 2009b. Appendix 25. Fauna. In: Chambers M & Bridge P J (eds) *Desert, Drought, and Death, the Border Exploration Syndicate Expedition to the Rawlinson Range 1899–1900 by Henry William Hill*, pp. 124–125. M G Creasy & Hesperian Press, Carlisle.
- ABBOTT I & BURBIDGE A A 1995. The occurrence of mammal species on the islands of Australia: a summary of existing knowledge. *CALMScience* 1, 259–324.
- AKLIF G 1999. *Ardiyooloon Bardi Ngaanka One Arm Point Bardi Dictionary*. Kimberley Language Resource Centre, Halls Creek.
- ALEXANDER W B 1920. Aboriginal names of the animals of the Lyons River district. *Journal and Proceedings of the Royal Society of Western Australia* 6, 37–40.
- ANON. nd. *Kartujarra Wordlist*. Wangka Maya Pilbara Aboriginal Language Centre, South Hedland.
- ANON. 1987. *A Basic Pitjantjatjara/Yankunytjatjara to English Dictionary*. Institute for Aboriginal Development, Alice Springs.
- ANON. 1991. *Warnman Wordlist*. Wangka Maya Pilbara Aboriginal Language Centre, Port Hedland.
- ANON. 1992. *Jaru Dictionary*. Kimberley Language Resource Centre, Halls Creek.
- ANON. 2006. *Yulparija*. Wangka Maya Aboriginal Language Centre, South Hedland.
- ANON. 2007. *Nyamal Dictionary*. Wangka Maya Pilbara Aboriginal Language Centre, South Hedland.
- ANON. 2008. *Yinhawangka Cictionary English-Yinhawangka Wordlist and Topical Wordlists, Draft 1*. Wangka Maya Pilbara Aboriginal Language Centre, Port Hedland.
- AUSTIN P 1992a. *A Dictionary of Yinggarda, Western Australia*. La Trobe University, Bundoora.
- AUSTIN P 1992b. *A Dictionary of Warriyangga, Western Australia*. La Trobe University, Bundoora.
- AUSTIN P 1992c. *A Dictionary of Thargarri, Western Australia*. La Trobe University, Bundoora.
- AUSTIN P 1992d. *A Dictionary of Thalanyji, Western Australia*. La Trobe University, Bundoora.
- AUSTIN P 1992e. *A Dictionary of Payungu, Western Australia*. La Trobe University, Bundoora.

- AUSTIN P 1992f. *A Dictionary of Jiwarli, Western Australia*. La Trobe University, Bundoora.
- BASEDOW H 1904. Anthropological notes made on the South Australian Government North-West prospecting expedition, 1903. *Transactions of the Royal Society of South Australia* 28, 12–51.
- BATES D M nd (?1904–12). [Manuscript or typescript vocabularies] Section XII. Part 2. Language: Grammar and Vocabularies. Western Australia (folio 365/39/1–237, 43/97–100, 47/1–128, 48/1–216, 49/1–133, 50/1–122, 51/1–83, 52/1–199, 53/1–111, 54/1–232, 55/1–159, 56/1–194, 57/1–126, 58/1–109). National Library of Australia, Canberra.
- BAYNES A 1987. The original mammal fauna of the Nullarbor and southern peripheral regions: evidence from skeletal remains in superficial cave deposits. In: McKenzie N L & Robinson A C (eds) *A Biological Survey of the Nullarbor Region South and Western Australia in 1984*, pp. 139–152. Government Printer, Adelaide.
- BAYNES A 1990. The mammals of Shark Bay, Western Australia. In: Berry P F, Bradshaw S D & Wilson B R (eds) *Research in Shark Bay. Report of the France–Australie Bicentenary Committee*, pp. 313–325. Western Australian Museum, Perth.
- BAYNES A & JONES B 1993. The mammals of Cape Range peninsula, north-western Australia. *Records of the Western Australian Museum Supplement* 45, 207–225.
- BLEVINS J 2001. *Nhanda an Aboriginal Language of Western Australia*. University of Hawai'i Press, Honolulu.
- BOSCACCI L J, MCKENZIE N L & KEMPER C M 1987. Mammals. In: McKenzie N L & Robinson A C (eds) *A Biological Survey of the Nullarbor Region South and Western Australia in 1984*, pp. 103–107. Government Printer: Adelaide.
- BOWDLER S 1995. The excavation of two small rockshelters at Monkey Mia, Shark Bay, Western Australia. *Australian Archaeology* 40, 1–13.
- BRAITHWAITE L W, DUDZIŃSKI M L & TURNER J 1983. Studies on the arboreal marsupial fauna of eucalypt forests being harvested for woodpulp at Eden, N.S.W. II. Relationship between the fauna density, richness and diversity, and measured variables of the habitat. *Australian Wildlife Research* 10, 231–247.
- BROCKMAN F S 1902. *Report on Exploration of North-West Kimberley 1901*. Government Printer: Perth.
- BROWN R 1913. Three tribes of Western Australia. *Journal of the Royal Anthropological Institute of Great Britain and Ireland* 43, 143–194.
- BURBIDGE A A & FULLER P J 1979. Mammals of the Warburton region, Western Australia. *Records of the Western Australian Museum* 8, 57–73.
- BURBIDGE A A & GEORGE A S 1978. The flora and fauna of Dirk Hartog Island, Western Australia. *Journal of the Royal Society of Western Australia* 60, 71–90.
- BURBIDGE A A, JOHNSON K A, FULLER P J & SOUTHGATE R I 1988. Aboriginal knowledge of the mammals of the central deserts of Australia. *Australian Wildlife Research* 15, 9–39.
- BURBIDGE A A, MCKENZIE N L, BRENNAN K E C, WOJNARSKI J C Z, DICKMAN C R, BAYNES A, GORDON G, MENKHORST P W & ROBINSON A C 2008. Conservation status and biogeography of Australia's terrestrial mammals. *Australian Journal of Zoology* 56, 411–422.
- BURGMAN A 2006a. *Jiwarli Dictionary*. Wangka Maya Pilbara Aboriginal Language Centre, South Hedland.
- BURGMAN A 2006b. *Kurrama–English Dictionary*. Wangka Maya Pilbara Aboriginal Language Centre, South Hedland.
- BURROWS N D & CHRISTENSEN P E S 2002. Long-term trends in native mammal capture rates in a jarrah forest in south-western Australia. *Australian Forestry* 65, 211–219.
- BUTLER W H 1970. A summary of the vertebrate fauna of Barrow Island, W.A. *Western Australian Naturalist* 11, 149–160.
- CARNEGIE D W 1898. *Spinifex and Sand. A Narrative of Five Years' Pioneering and Exploration in Western Australia*. Pearson, London.
- CLARKSON B D 1864. Journal of an expedition. *The Inquirer & Commercial News* 21.9.1864, 2–3.
- COLLETT R 1897. On a collection of mammals from north and north-west Australia. *Proceedings of the Zoological Society of London* 1897, 317–336.
- COLONIAL SECRETARY'S DEPARTMENT. ABORIGINES AND FISHERIES 1913. Microfiche 652/108/5a/992. State Records Office of Western Australia, Perth.
- CURR E M 1886. *The Australian Race: its origin, languages, customs, place of landing in Australia, and the routes by which it spread itself over the continent*. Volume 1. Government Printer, Melbourne.
- DAHL K 1927. In *Savage Australia, an account of a hunting and collecting expedition to Arnhem Land and Dampier Land*. Allan, London.
- DAVIDSON A A 1905. *Journal of Explorations in Central Australia*. Government Printer, Adelaide.
- DONALDSON M & ELLIOT I (Editors) 1998. *Do Not Yield to Despair. Frank Hugh Hann's Exploration Diaries in the Arid Interior of Australia, 1895–1908*. Hesperian Press, Victoria Park.
- DOUGLAS W H 1981. Watjarri. In: Dixon R M W & Blake B J (eds) *Handbook of Australian Languages*, pp. 196–272. Australian National University Press, Canberra.
- DOUGLAS W H 1988. *An Introductory Dictionary of the Western Desert Language*. Western Australian College of Advanced Education, Perth.
- DUNLOP J & MORRIS K 2009. Into the wild: restoring rangelands fauna. *Landscape* 24(4), 52–58.
- EASTON W R 1922. *Report of the North Kimberley district of Western Australia*. Government Printer, Perth.
- EXPLORATION DIARIES 1827–1871. Vols 1–6, typescript. Battye Library, Perth.
- EYRE E J 1845. *Journals of Expeditions of Discovery into Central Australia and overland from Adelaide to King George's Sound*. T & W Boone, London.
- FORREST J 1875. *Explorations in Australia*. Sampson Low, Marston, Low & Searle, London.
- GILES E 1889. *Australia Twice Traversed...from 1872 to 1876*. Sampson Low, Marston, Searle & Rivington, London.
- GLASS A & HACKETT D 2003. *Ngaanyatjarra & Ngaatjatjarra to English Dictionary*. IAD Press, Alice Springs.
- GREGORY A C & GREGORY F T 1884. *Journals of Australian Explorations*. Government Printer, Brisbane.
- GREGORY F T 1862. Expedition to the north-west coast of Australia. *Journal of the Royal Geographical Society of London* 32, 372–429.
- GREY G 1841. *Journals of Two Expeditions of Discovery in North-West and Western Australia, during the Years 1837, 38, and 39*. T & W Boone, London.
- GRIBBLE J B 1905. Dark Deeds in a Sunny Land or Blacks and Whites in North-West Australia. Daily News, Perth.
- HALL H A 1971. *A Partial Vocabulary of the Ngulooma Aboriginal Tribe*. Australian Institute of Aboriginal Studies, Canberra.
- HELMS R 1896. Anthropology [of the Elder Scientific Expedition]. *Transactions of the Royal Society of South Australia* 16, 237–332.
- HELMS R 1897. East Kimberley. *Journal of the Bureau of Agriculture of Western Australia* 4, 1283–1287, 1299–1303, 1306–1311.
- HOW R A 1983. Common brushtail possum *Trichosurus vulpecula*. In: Strahan R (ed.) *The Australian Museum complete book of Australian mammals*, pp. 147–148. Angus & Robertson Publishers, Sydney.
- HOW R A, DELL J & MUIR B G 1988. Vertebrate fauna. The biological survey of the eastern goldfields of Western Australia. Part 4. Lake Johnstone-Hyden study area. *Records of the Western Australian Museum Supplement* 30, 44–94.

- HOW R A & KERLE J A 1995. Common brushtail possum *Trichosurus vulpecula*. In: Strahan R (ed.) *The mammals of Australia* pp. 273–275. Reed Books, Chatswood.
- HUNT C C 1864. *Journal of Exploration Eastward of York in 1864* (typescript of Field Book). Batty Library, Perth.
- JOHNSTONE R E & STORR G M 1998. *Handbook of Western Australian Birds*. Vol. 1. Western Australian Museum, Perth.
- JONES B 2004. The possum fauna of Western Australia: decline, persistence and status. In: Goldingay R L & Jackson S M (eds) *The Biology of Australian Possums and Gliders*, pp. 149–160. Surrey Beatty & Sons, Chipping Norton.
- KERLE A 2001. *The Brushtails, Ringtails and Greater Glider*. University of New South Wales Press, Sydney.
- KERLE A 2004. A cautionary tale: decline of the common brushtail possum *Trichosurus vulpecula* and common ringtail possum *Pseudocheirus peregrinus* in the woodlands of the western slopes and plains of New South Wales. In: Goldingay R L & Jackson S M (eds) *The Biology of Australian Possums and Gliders*, pp. 71–84. Surrey Beatty & Sons, Chipping Norton.
- KERLE J A 1983. Northern brushtail possum *Trichosurus arnhemensis*. In: Strahan R (ed.) *The Australian Museum Complete Book of Australian Mammals*, pp. 149. Angus & Robertson Publishers, Sydney.
- KERLE J A, FOULKES J N, KIMBER RG & PAPENFUS D 1992. The decline of the brushtail possum, *Trichosurus vulpecula* (Kerr 1798), in arid Australia. *Rangelands Journal* 14, 107–127.
- KERLE J A & HOW R A 2008. Common brushtail possum *Trichosurus vulpecula*. In: Van Dyck S & Strahan R (eds) *The Mammals of Australia* (3rd edition), pp. 274–276. Reed New Holland, Chatswood.
- KING P P 1827. *Narrative of a survey of the intertropical and western Coasts of Australia*. Vol. 1. Murray, London.
- KITCHENER D J & VICKER E 1981. *Catalogue of Modern Mammals in the Western Australian Museum 1895 to 1981*. Western Australian Museum, Perth.
- LEFROY H M 1863. *Memoir and Journal of an Expedition...for the purpose of exploring the interior of the colony...* Exploration Diaries 5, 204–335. Batty Library, Perth.
- LEFROY R F B (Editor) 2003. *A Varied and Versatile Life. The memoirs of Frank Wittenoom 1855–1939*. Hesperian Press, Carlisle.
- LINDSAY D 1893. Journal of the Elder Exploring Expedition, 1891. *Parliamentary Paper South Australia* 45, 1–78.
- LOVE J R B nd. *English–Worora Vocabulary* (typescript). University of Western Australia Library, Crawley.
- LUNDELIUS E L 1963. Vertebrate remains from the Nullarbor caves, Western Australia. *Journal of the Royal Society of Western Australia* 46, 75–80.
- MARTIN J 1864. *Journal of a Voyage of Exploration to Brecknock Harbor and Roebuck Bay, on the North-west Coast of Australia, in March, April, and May, 1864*. Shenton, Perth.
- MATHEWS R H 1910. Some Aboriginal tribes of Western Australia. *Journal and Proceedings of the Royal Society of New South Wales* 35, 217–222.
- McKELSON K 1989. *Topical Vocabulary in Northern Nyangumarta*. Nulungu Catholic College, Broome.
- McKELSON K & DODD T 2007. *Nganarna Nyangumarta Karajarrinili Ngnrranga We Nyangumarta in the Country of the Karajarri*. Wangka Maya Pilbara Aboriginal Language Council, South Hedland.
- McKENZIE N L & YOUNGSON W K 1983. Mammals [of the Great Sandy Desert]. *Wildlife Research Bulletin Western Australia* 12, 62–93.
- MILLER E, DUNLOP J & MORRIS K 2010. Rangelands restoration: fauna recovery at Lorna Glen Western Australia. Progress Report August 2008– June 2010. Department of Environment and Conservation Library, Kensington.
- MJÖBERG E 1915. *Among Wild Animals and People in Australia* (translated by M Luotsinen & K Akerman, 2012). Hesperian Press, Carlisle.
- MORRIS K & BURBIDGE A 2002. Bountiful Barrow. *Landscape* 17(3), 18–24.
- MURRAY W R 1904. Extracts from journals of explorations by R. T. Maurice, Fowler's Bay to Rawlinson Ranges and Fowler's Bay to Cambridge Gulf. *Parliamentary Paper South Australia* 43, 1–39.
- NGABIDI G & SHAW B 1981. *My Country of the Pelican Dreaming. The Life of an Australian Aborigine of the Gadjeroug...1904–1977*. Australian Institute of Aboriginal Studies, Canberra.
- OLDFIELD A 1865. On the Aborigines of Australia. *Transactions of the Ethnological Society of London* 3, 215–298.
- ORELL P 2004. Fauna monitoring and staff training: Western Shield review – February 2003. *Conservation Science Western Australia* 5, 51–95.
- OZCAM 2012. Online map of museum specimen records of *Trichosurus vulpecula*. <<http://ozcam.ala.org.au/occurrences/search?taxa=trichosurus+vulpecula>> (accessed 18.1.2012).
- RICHARDS J D & SHORT J 1996. History of the disappearance of native fauna from the Nullarbor Plain through the eyes of long time resident Amy Crocker. *Western Australian Naturalist* 21, 89–96.
- ROYAL COMMISSION 1890. Royal Commission of Inquiry into Schemes for Extermination of Rabbits in Australasia. Progress Report, Minutes of Proceedings, Minutes of Evidence, and Appendices. *Journal of the Legislative Council of New South Wales* 47, 775–1030 (i–xxxviii, 1–216).
- RUSSEL H 1899. Expedition to the Barrow, Cavenagh, and Warburton Ranges, Western Australia. *Transactions of the Royal Geographical Society of Australasia (Victorian Branch)* 17, 64–72.
- START A N, BURBIDGE A A, McKENZIE N L & PALMER C 2007. The status of mammals in the north Kimberley, Western Australia. *Australian Mammalogy* 29, 1–16.
- THOMAS O 1904. On a collection of mammals made by Mr. J. T. Tunney in Arnhem Land, Northern Territory of South Australia. *Novitates Zoologicae* 11, 222–229.
- TINDALE N B 1974. *Aboriginal Tribes of Australia*. University of California Press, Berkeley.
- VALIQUETTE H 1993. *A Basic Kukatya to English Dictionary*. Luumpu Catholic School, Wirrimanu (Balgo).
- VAN DYCK S & R STRAHAN R (Editors) 2008. *The Mammals of Australia* (3rd edition). Reed New Holland, Chatswood.
- WHITE I (Editor) 1985. *The Native Tribes of Western Australia*. National Library of Australia, Canberra.
- YABAROO [?A S CAMERON] 1899. *Aborigines of North-West Australia. A Vocabulary, etc.* J W Barnard, Perth.
- YOUNGSON W K, HENRY J & McKENZIE N L 1981. Mammals [of the Edgar Ranges area]. *Wildlife Research Bulletin Western Australia* 10, 39–45.

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